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GOLD MINING IN SOUTHERN RHODESIA, 1919-1953

I. R. PHIMISTER*

'At the end of 1939 gold mining employed more than three-quarters of the total number of Africans engaged in mining; at the end of 1953 it employed under two-fifths, and the number it employed were only about a third of those in 1939. Output in 1939 was nearly 800,000 fine ounces; in 1953 little more than 500,000 fine ounces. Until 1946 gold was Southern Rhodesia's principal export; in that year it was overtaken by tobacco and since 1952 the value of exports of gold has been less than of asbestos. The decisive factor causing this decline has been the static dollar price of gold in relation to rising costs of production'.¹

After 1918, gold mining in Southern Rhodesia was characterized by an overall decline in output. This trend was somewhat obscured and delayed by the premium on gold which operated between 1919 and 1925 and even temporarily reversed in the years 1932 to 1940 following Britain's abandonment of the gold standard, but by 1953 the amount of gold produced was smaller than in 1906. In the following pages, the reasons for the general fall in gold output, together with attempted remedies undertaken by both mineowners and Government, are examined.

Stagnation and decline of gold mining, 1919-1930

The structural change which occurred in the gold mining industry after 1918² was notable for two main features; the growing importance of large producers and the near-eclipse of medium-sized mines. These latter mines, as Table I shows, declined considerably; from a total of ninety three in 1917, their number fell to fifty eight within two years. An increase in the price of gold temporarily halted this feature, but as the value of the premium declined and then ended in early 1925, the eclipse of medium-sized producers accelerated.

* Lecturer in History, University of Rhodesia.

¹C. H. Thompson and H. W. Woodruff, *Economic Development in Rhodesia and Nyasaland* (London, 1953), 153-4.

²For the causes of this change, see Phimister, 'History of Mining in Southern Rhodesia to 1953', University of Rhodesia, unpub. PhD, 1975, 122-3.

TABLE I: STRUCTURAL GOLD OUTPUT, 1913-1930^a

YEAR	TOTAL GOLD	BIG MINES			MEDIUM MINES			SMALL MINES		
		No.	ozs.	% of total prod.	No.	ozs.	% of total prod.	No.	ozs.	% of total prod.
1913	689,954	14	388,544	56.31	80	230,896	33.47	394	70,514	10.22
1914	854,480	19	503,984	58.98	93	281,530	32.95	384	68,966	8.07
1915	915,029	17	562,928	61.52	91	272,479	29.78	381	79,622	8.70
1916	930,356	17	568,139	61.07	98	290,422	31.21	379	71,795	7.72
1917	834,230	14	511,685	61.34	93	247,836	30.90	359	64,709	7.76
1918	631,358	10	401,563	63.60	66	176,987	28.04	338	52,808	8.36
1919	593,222	10	402,466	67.84	58	143,045	24.11	246	47,711	8.05
1920	552,498	8	355,806	64.40	57	147,543	26.71	230	49,149	8.89
1921	585,525	9	381,614	65.18	59	160,521	27.41	248	43,390	7.41
1922	652,791	9	427,095	65.43	60	162,987	24.96	344	62,709	9.61
1923	647,491	9	431,488	66.64	67	147,988	22.85	390	68,015	10.51
1924	627,729	10	424,104	67.56	59	132,225	21.07	419	71,400	11.37
1925	581,504	8	394,786	67.89	45	111,534	19.18	428	75,184	12.93
1926	593,429	9	423,306	71.33	43	95,199	17.02	431	74,924	12.65
1927	581,438	9	438,967	75.50	39	84,461	14.52	326	58,010	9.98
1928	576,112	9	445,367	77.31	33	80,733	14.01	258	50,012	8.68
1929	560,813	9	412,744	73.59	32	96,103	17.15	249	51,966	9.26
1930	547,630	9	408,797	74.65	36	84,896	15.50	286	53,937	9.85

^aS. Brooke-Norris, 'The gold output and Mining activity of Southern Rhodesia, 1907 to 1932', *Southern Rhodesia Geological Survey Bulletin* No. 25 (Salisbury, 1933), 8-17.

Smallworkers, too, fluctuated in numbers and output between 1919 and 1930. But while this sector experienced a general decrease in production and in the number of producers, it was nowhere near as great as in the medium sector. The percentage contribution of smallworkers to the total gold output remained roughly constant, in contrast to that of medium-sized producers which was halved between 1917 and 1930.

Although the number of large mines also decreased towards the end of World War One, their later consistency, both in numbers and in output, was significant. Despite the fall in total gold production, 'the contribution of the big mines stayed within a narrow range, never varying by more than 11 per cent. from 400,000 ozs. p.a. and was 7,000 ozs. more in 1930 than it was in 1918'.⁴ Their steady output in the years under discussion, when production by smaller mines was declining, served to enhance the dominant position of large producers within the industry. By 1930, nine large mines accounted for over seventy four per cent of all gold mined.

Explanation for this structural change is found in the particular profitability constraints which affected each of the three main components of the gold mining industry. All three, of course, shared the basic cost structure associated with the mining of low grade ore and the consequent imperatives of cost minimisation and output maximisation.⁵ But the capacity of different-sized mines to absorb or reduce costs or pursue flexible mining policies with regard to the price of gold, differed sharply. Smallworkers, for example, with their profitability dependent on a very low level of working costs, were especially vulnerable to rapid increases in the cost of mining materials. Not surprisingly, the number of small mines decreased by over one hundred between 1917 and 1919. Conversely, when the price of gold increased and the cost of mining stores dropped, the characteristic low capitalisation and easily transportable crushing mills employed by smallworkers enabled them to respond quickly to more favourable economic conditions.

By very definition, large mines enjoyed bigger capital resources, more advanced crushing and recovery plant, specialised management and engineering services and skills and, potentially at least, far greater ore reserves of varying value than did smaller producers. The use of comparatively large plants conferred the important benefit of reduction of working costs per unit.⁶ Such economies of scale were also apparent in the ability of large mines to purchase bulk supplies of stores and food and to plan and order ahead for

⁴N. H. Wilson, *The Mining Industry of Southern Rhodesia* (Salisbury, 1933), 18.

⁵For fuller discussion, see Phimister, 'The Reconstruction of the Southern Rhodesian Gold Mining Industry, 1903-10', *Economic History Review*, 1976 (forthcoming).

⁶W. J. Busschau, *The Theory of Gold Supply with special reference to the problems of the Witwatersrand* (London, 1936), 63.

their requisites. Furthermore, actual or potential possession of large ore reserves allowed big mines to follow a more scientific policy of selective mining as regards the grade of ore sent to the crushing mill.⁷

Essentially, this meant that if the price of gold increased, large mines could choose to extract a section of ore whose grade had previously been unprofitable. Evidence that the 'mines worked systematically and regulated their grade according to market price'⁸ is provided by Table II reproduced below.

TABLE II: EFFECT OF GOLD PRICE ON ORE GRADE, PART ONE

YEAR	TOTAL OZS.	GRADE	AVERAGE PREMIUM
1919	593,222	6.70	17/- per. oz. July-Dec
1920	552,498	6.35	27/9 " "
1921	585,525	6.17	22/3 " "
1922	652,791	6.33	8/6 " "
1923	647,491	6.18	5/6 " "
1924	627,729	6.02	8/10 " "
1925	581,504	5.95	2/1 " " Jan-Mar

The disappearance of the premium after March 1925 resulted in a gradual rise in grade, as ore of a lower value once again became unprofitable.

TABLE II: PART TWO

YEAR	TOTAL OZS	GRADE
1926	593,429	6.32
1927	581,438	6.71
1928	576,112	6.92
1929	560,813	6.86
1930	547,630	7.88

But selective mining was effectively restricted to large mines because 'the determination of the most profitable grade of ore is a complex process, as the grade is a function of the capital outlay (i.e. the size of the technical equipment), the rate of interest, the degree of risk involved, the annual output, and the distribution of ore between high and low grades'.⁹

As the profitability of smallworkers' operations depended on near-immediate returns, they were obliged to follow a policy of non-selective

⁷For explanation of 'selective' and 'non-selective' mining, see Busschau, 85-7. By grade is meant the number of dwts. of gold contained in a ton of rock.

⁸S 472, 'Effect of Gold Price on Grade of Ore treated by the Large Mines', Registrar of Claims to the Hon. the Minister of Mines, 4.xi.1939. The table is taken from this source. All archival sources are held in the National Archives of Rhodesia, Salisbury.

⁹Busschau, 86.

mining whereby all payable gold was extracted. Similarly, medium-sized producers lacked the capitalisation and scale of operations to postpone immediate high returns by following a flexible grade policy. Unlike small-workers, though, their operations involved comparatively heavier fixed costs which did not allow them to stop and start production with relative impunity. It was thus the particular structural position of medium-sized mines which made them especially vulnerable to cost inflation.

Problems engendered by rising costs during and after World War One were in fact the major difficulties which the gold mining industry confronted in the early part of this period. Considerable price increases of mining stores and machinery were occasioned by the war, but the 'cessation of hostilities brought little relief to the mining industry, as the prices for mining requisites, instead of falling, still showed an upward tendency'.¹⁰ Mining spares and machinery such as boilers and engines went up in price by about ten per cent during 1920, although in certain districts the closure of mines allowed a reduction in the cost of second-hand crushing mills.¹¹ The persistence and, in some cases, additional increase to these high prices caused a further fall in the number of mines in all sectors of the gold mining industry, but particularly among medium and small producers. As regards the latter mines, it was reported that they have 'had a hard time to make both ends meet. Many have retired from the contest altogether and the remainder, except those who are in the fortunate position of having high grade ore bodies are struggling along in a hand to mouth fashion'.¹²

By 1921, the crest of cost inflation for manufactured mining articles had been reached and prices gradually began to fall. Even so, working costs for smallworkers at this time were estimated at between twenty and fifty per cent above pre-war figures,¹³ especially as two important exceptions to falling prices were explosives and cyanide.¹⁴ It was only in the following year when the cost of mining commodities was appreciably reduced that smallworkers began to reappear in increasing numbers. 'The fall in the price of machinery, both new and second-hand', explained the acting Secretary for Mines, 'has assisted the small men to purchase plant and start working operations, whilst at the same time developing'.¹⁵

Apart from price increases for manufactured commodities, the gold mines also had to contend with a rise in the cost of coal and in transport rates. Following a strike of white employees towards the end of 1919,

¹⁰*Report of the Secretary for Mines for the year 1919*, 1.

¹¹A 8/1/10, Mining Commissioner, Hartley, report for year ended 31.xii.1920.

¹²*Ibid*, Mining Commissioner, Bulawayo, report for year ended 31.xii.1920.

¹³*Ibid*, Mining Commissioner, Salisbury, Mazoe and Lomagundi, report for year ending 31.xii.1921.

¹⁴*Report of the Secretary for Mines for the year 1921*, 2.

¹⁵*Report of the Acting Secretary for Mines for the year 1922*, 1.

Wankie Colliery had been forced to increase their wages. These increased production costs were passed directly to consumers, as the colliery in turn raised the price of coal at the pithead from ten shillings per ton to twelve shillings.¹⁶ The cost of coal to the mines was greater than this figure suggests, because of the higher railway rates introduced in 1919.¹⁷ Consequently, by 1923 the Salisbury Chamber of Mines was complaining of the 'enormous increase in one of the principal necessities of mining' and warned that the 'high cost of coal and the heavy transportation charge on it have forced mining companies to consider the use of gas engines with wood-burning producers'.¹⁸ The important Lonely Mine, for example, did just that. When supplies of nearby wood fuel were exhausted, instead of turning to coal, the mine installed a gas suction plant which reduced working costs significantly.¹⁹ But the capital cost of such plant, some seventy five thousand pounds,²⁰ meant that this option was open only to large mines.

As with coal, one of the reasons for the introduction of higher railway rates in 1919 was the increased wages paid to white railwaymen, but more important were 'expenses in connection with the provision of fresh capital'. To service this debt a special surcharge on all rates was imposed early in 1920 and at the end of the year was further raised to 33½ per cent.²¹ In 1922 the surcharge was removed on bulk items like chrome, asbestos, copper and coke,²² but otherwise continued unaltered except for minor reductions in 1923 and early 1925. The latter concession was dismissed by the mining industry as 'totally inadequate'.²³ Railway rates were, however, substantially cut in 1926, possibly because the railway administration was aware that the gold mines were now working without the help of the gold premium. Rates on mining machinery, cyanide and heavy iron and steel goods were reduced by ten per cent and by between ten and thirteen per cent on coal.²⁴

A further increased cost which the gold mines had to bear concerned labourers' rations. World War One had brought about a boom in external demand for Southern Rhodesian maize and cattle and this lasted through 1920. Although the price increase was only of short duration, it coincided with cost inflation for mining stores and was undoubtedly instrumental in forcing the closure of numerous medium and small mines. Large mines, though, were able to minimize this increase by a system of forward contracts:

¹⁶*Report of the Secretary for Mines for the year 1919*, 7.

¹⁷*Rhodesia Chamber of Mines Annual Report for the year 1920*, 28.

¹⁸*Rhodesia Herald*, 6.vi.1923.

¹⁹L 2/1/137, A. Treger, Lonely Mine, to S. S. Grossberg, 25.x.1921.

²⁰A 8/1/10, Mining Commissioner, Bulawayo, report for year ended 31.xii.1921.

²¹*Rhodesia Chamber of Mines Annual Report for the year 1920*, 28; *Ibid*, 1922, 29.

²²*Ibid*.

²³*Report of the Under Secretary for Mines and Works for the year 1923*, 3; *Rhodesia Chamber of Mines Annual Report for the year 1925*, 30.

²⁴*Rhodesia Chamber of Mines Annual Report for the year 1926*, 26-7.

'The bigger mines are more fortunate with regard to prices than the Small Worker. For instance, the big mines have been able to get meal at the contract price of 10/- per bag, whereas the small mines have had in some cases to pay as much as 26/- for the meal they required'.²⁵

While all sectors of the gold mining industry were affected by cost inflation in the various spheres described above, there was little direct action that could be taken to minimize such costs. No control could be exercised over the prices of imported commodities and even as regards railway rates, the gold mines could do little more than agitate for their reduction. Direct cost minimisation, as before in the period of reconstruction from 1903-10, was thus concentrated against labour. But unlike the earlier period, the most spectacular conflict and wage reductions involved white mineworkers.

The structural position of the large mines normally ensured that they were better placed to absorb or minimize the impact of increased costs, but in this instance the comparative cost benefits which their size conferred in other spheres were reversed. As the largest employers of white workers, they bore the brunt of such wage demands. Between 1914 and 1920 the cost of living for whites rose by fifty nine per cent²⁶ and white workers both on the mines and elsewhere responded with a series of wage demands and strikes. Faced with a declining output and general cost inflation the question of white wages consequently assumed an increasing urgency for large gold producers in the years immediately after World War One. On the Gaika Mine, for example, it was reported that the

'increase in pay given to European employees in January represented an increase of approximately 2/- per ton . . . the continual increase in costs due to the increase in cost of stores and railage, and the further demands for higher wages recently presented by the Mine Workers' Union are a source of great anxiety to the Management'.²⁷

Other spokesmen, too, had earlier claimed that because the gold mines 'were at present just on the balance between profit and loss', they could not afford increased white wages.²⁸

These claims, however, contained a strong element of managerial ideology and did not strictly reflect the economic viability of the large gold mines. Throughout the early part of this period dividends continued to be realised

²⁵A 8/1/10, Mining Commissioner, Salisbury, Mazoe, Lomagundi, report for year ending 31.xii.1919.

²⁶T 8/2/2, P.D.L. Fynn, to Secretary, 18.ii.1920.

²⁷A 8/1/10, Mining Commissioner, Gwelo, report for the year ended 31.xii.1920.

²⁸*Rhodesia Chamber of Mines Annual Report for the year 1919*, 34.

at a rate of half a million or more pounds per annum;²⁹ what was at stake was not so much the fundamental profitability of the industry, but profit maximisation. Associated with this imperative was the need to attract fresh capital which, allegedly, was being deterred from entering the country by labour unrest and increased production costs.³⁰ In 1921, the President of the Rhodesia Chamber of Mines sarcastically observed that 'it was very difficult to get Labour to understand the true economic position', but he did 'think the bulk of the employees understood that if a mine did not pay its way it could not carry on'. But this was not enough; not only had a mine to pay its way, it also had to pay enough for dividends 'so as to satisfy the people with the money in the various concerns. Their object was to attract capital to the country, and not to get rid of it'.³¹

For these reasons³² the Rhodesia Mine Owners Association, formed in 1920 to co-ordinate the policy of large mines, took action against white workers. Following a strike at Shamva in 1921, a general lock-out was organised by the mine owners and this ended in capitulation by white workers. In 1922 white wages were reduced and in subsequent years union organisation was broken by the mining companies. So successful were the mining companies that unionism was not re-established amongst white mineworkers until 1938.

But if conflict between the gold mines and their white workers over wages was primarily an issue of profit maximisation, the fundamental profitability of the industry continued to rest on the exploitation of cheap, black labour. During much of World War One, black wages either remained static or declined,³³ as the cost of other elements of production rose. Towards the end of the war, African wages rose slightly by an average of thirteen per cent, but at the same time their cost of living had advanced enormously. An investigation conducted by the Native Department revealed that, on the basis of ten types of articles most commonly bought by Africans, their c.o.l. had risen on average by one hundred and sixty five per cent between 1914 and

²⁹See, for example, T 2/29/59/1 and *Report of the Acting Secretary for Mines for the year 1922*, 3. After 1923 and until 1929, dividends averaged well over three-quarters of a million pounds per annum; see *Rhodesia Chamber of Mines Annual Report for the year 1923*, and subsequent years. After that date, no composite figures for the industry's dividends have been found; dividends of the Globe and Phoenix, Cam and Motor and Rezende mines for the period between 1930 and 1953 rise markedly during 1930-1938, and thereafter fall rapidly. In the case of the Cam and Motor, from an average of £300,000 per annum to circa £70,000 per annum. I am grateful to Mr. J. G. Phimister for supplying these figures.

³⁰*Report of the Secretary for Mines for the year 1920*, 1.

³¹*Rhodesia Chamber of Mines Annual Report for the year 1921*, 30.

³²The premium on gold also declined after 1921.

³³W. Margolis, 'The position of the Native Population in the Economic Life of Southern Rhodesia', University of South Africa, unpub. M. A. thesis, 1938, 146.

November 1920.³⁴ African real wages had thus fallen significantly and in fact were lower than in 1904.

Moreover, the average African wage increase was calculated on the basis of the mining industry as a whole and this obscured the fact that the major proportion of the increase came from base mineral properties then operating in boom conditions. The important gold mining districts of Gwelo, Hartley and Gatooma registered no wage increases at all³⁵ and in numerous instances African cash wages were lower than in 1914. In the Hartley and Gatooma districts, African mineworkers in 1920 were 'actually being paid some 4/- per head less than their pre-War rates of pay'. The assessment of the local mining commissioner was that the

'present position would therefore appear to be that although the Mines have to pay high prices for Mining Stores, spares of certain Machinery, and . . . increased wages for the white employees, still on the other side Native Wages and the foods necessary for the feeding of these natives are appreciably lower'.³⁶

Further inroads into African wages continued to be made and 1925 they were, at best, some twenty five per cent lower than in 1912.³⁷

The gold mining industry also continued to utilise the skills of African mineworkers as far as possible. But as before, this feature was most predominant amongst the smaller producers where it received a fillip due to other rising costs, particularly white wages, during and after World War One. A further factor was the shortage of skilled white labour occasioned by the war and this led to complaints that 'many highly skilled native miners . . . have taken the places of those who have put their duty to their country first',³⁸ An investigation published in 1925 revealed a formidable list of occupations held by skilled Africans. On the mines these job categories included clerks, drillers, drill sharpeners, hoist attendants, latheworkers, mine engine drivers, typists, fitters, joiners, riggers, timbermen, carpenters, electricians, motor mechanics, steam hammer attendants and millmen.³⁹ Employment of Africans in these categories was mostly confined to medium and small producers whose structural cost limitations were highlighted by the often-expressed opinion that it would be economically 'disastrous to . . . small workers if any restriction were placed on the employment of skilled Native labour'.⁴⁰

³⁴N 3/33/2, Cost of Living, Native Commissioners' Reports, 22.xi.1920.

³⁵N 3/33/2, attached schedules.

³⁶A 8/1/10, Mining Commissioner, Hartley-Gatooma, report for year ended 31.xii.1920.

³⁷S 235/396, 'Cost of Administration Report: Rhodesian Native Labour Bureau', 20.iii.1925.

³⁸DG 5/1/2, Civil Commissioner, Gatooma, report for year 1916.

³⁹*Report of the Commission appointed to enquire into the matter of Native Education in all its bearings in the Colony of Southern Rhodesia, 1925, 107-8.*

⁴⁰*Ibid.*, 106.

The same investigation discovered that on 'some mines, particularly the older ones, if actual displacement of the white has not occurred, at any rate some of the wastage of white labour has been made good by trained Native labour . . . the result has been . . . a reduction in the ratio of white labour to black'.⁴¹ This decline must again have occurred primarily outside of the large mines because on the Shamva and Globe and Phoenix gold mines, for example, the majority of the skilled occupations noted above were held by Europeans.⁴² Nevertheless, even on large gold mines the ratio of white to black was much lower in Southern Rhodesia than on the Rand; in 1925 the ratio on the Rand was approximately 1:9, whereas in Southern Rhodesia it varied from 1:15 to 1:24.

Between 1919 and 1925, the cost problems encountered by the gold mining industry had to a certain degree been eased by the operation of a premium on gold. First introduced at the end of July 1919,⁴³ the value of the premium was subject to considerable fluctuations and after 1921 declined more or less steadily, before being phased out early in 1925. Although the premium slowed and even briefly reversed the general fall in the output of gold, it operated, as previously argued, mainly to the advantage of large gold mines and with its disappearance the decline of the more vulnerable medium and small producers was renewed.

The contraction of gold production had earlier attracted the attention of the Government and in 1924 a scheme to assist the mining industry had been inaugurated. Over a four-year period, sixty thousand pounds was voted to help prospectors, aid miners purchase machinery and develop their properties and to assist the industry generally. Some of this capital was channelled into base mineral propositions, especially mica mining, but for the gold mining industry as a whole the impact of the scheme was negligible.⁴⁴ Assisted individual prospecting in particular was singularly unsuccessful and as some of those associated with the industry realised, large-scale, modern methods were called for. Initiatives in this field, however, were successfully blocked by smallworkers.

The inability of the gold mining industry as a whole to maximise output and further reduce costs after 1925 rested on a variety of features which limited Government assistance could not overcome. One general problem was that as mines were worked deeper in the 1920s the cost per ounce tended to rise either through a falling-off in the value of the deposit with depth (a common characteristic of Southern Rhodesia gold mining) or 'an increase

⁴¹*Ibid.*, 109.

⁴²Information contained in *The Rhodesia Directory 1927* (Bulawayo, 1927).

⁴³*Report of the Secretary for Mines for the year 1919*, 1.

⁴⁴*Report of the Secretary, Department of Mines and Public Works on Mines, for the year 1928*, 2-4.

in the cost of extraction with richness unchanged, since mining at great depth would entail high ventilation and other charges'. Busschau goes on to explain that the law of diminishing returns, under which all mines operate, states that

'if at a particular time and with given methods of production (processes, types of machinery, etc.), the same application of capital and labour applied in successive doses to a piece of land gives with additional doses decreasing marginal returns (although the return in total may be increased) production is taking place under conditions of diminishing returns or increasing costs'.⁴⁵

This problem was rendered especially acute for the mines when gold returned to a fixed price after March 1925.

Escape from this dilemma in such circumstances could only lie along the paths of output maximisation and cost minimisation. What is significant is that the industry was forced to adopt the less satisfactory policy of output maximisation in the sense of aiming for the highest possible extraction of gold per ton. The tonnage milled each year declined steadily, while the grade of ore that could be profitably mined rose considerably. As earlier discussed, however, only the large mines could effectively exercise this option, which even for them could be no more than a short-term holding operation.

Recourse to the customary procedure of minimising costs by reducing expenditure on African labour was not generally possible after the end of the gold premium and before the Depression for a number of reasons. The slump in maize and cattle prices during 1921-3 obliged increasing numbers of indigenous Southern Rhodesian Africans to seek wage employment and this, together with expanding numbers drawn from the peripheries of the regional economic system, ensured the mining industry of an adequate labour supply even when wages were falling. But from the latter part of 1925 through until 1928 a labour shortage of varying intensity persisted.⁴⁶ This was partly due to a temporary recovery in the economic position of part of the Southern Rhodesian African peasantry between 1924 and 1929 and to the assistance given African cash-cropping in Nyasaland in this period.⁴⁷ In 1928 and 1929 leading spokesmen for the industry raised the question, for the first time since the turn of the century, of introducing labour-

⁴⁵Busschau, 36.

⁴⁶*Rhodesia Chamber of Mines Annual Report for the year 1925* and see reports for succeeding years. In the context of the Southern Rhodesian mining industry, 'labour shortage' is a relative term; i.e. relative to a non-adjustable wage level, at least in an upward direction.

⁴⁷See M. Chanock, 'The Political Economy of Independent Agriculture in Colonial Malawi: The Great War to the Great Depression', *Journal of Social Science*, 1972, 1, 113-29.

saving machinery to the mines and also drew attention to the danger posed to Southern Rhodesia's labour supplies by the development of the Northern Rhodesian Copperbelt.⁴⁸

Other factors which contributed to the shortage of labour at this time included the rapid expansion of the territory's labour-intensive commercial farming⁴⁹ and competition from the expanding base mineral mines. These latter producers, together with the small gold mines, in fact generally found it difficult to obtain sufficient labour because of the lower wages they paid. The somewhat higher wages on the large gold mines normally allowed them to meet their labour requirements but the managements of the companies concerned must have realised that for the moment black wage labour costs could not be arbitrarily reduced. Warning of this was served by at least ten strikes on various mines, including that on the large Shamva Mine, between December 1925 and October 1928. It would seem that all the industry could do at this point was ensure that wages generally did not rise. Cost minimisation in this vital sector was thus arrested and production declined accordingly, until by 1930 the amount of gold produced was smaller than in 1907.

Recovery and contraction of gold mining, 1931-1953

A number of features associated with the Great Depression enabled Southern Rhodesia's gold mining industry to expand greatly after 1931. Most significant of these was Britain's abandonment of the gold standard in September 1931 and Southern Rhodesia's decision to follow suit the same October. The resultant rise in the price of gold made profitable millions of tons of previously unpayable ore. Also vitally important was the impact of the Depression on agricultural and base mineral activities, whose markets either collapsed or at best were severely reduced in size. Labourers formerly employed in those sectors, together with many peasants from the African rural areas, were thus obliged to seek work on the gold mines. With the increased value of gold and abundant labour, the obstacles which had earlier blocked output maximisation and cost minimisation disappeared. Between 1931 and 1938, the output of gold rose from 532,111 ounces to 814,078 ounces, an increase of fifty three per cent. At the same time, the grade of ore mined fell by over fifty per cent, from 7.65 dwts. to 3.72 dwts.⁵⁰

⁴⁸*Rhodesia Herald*, 15.vi.1928; *Rhodesia Chamber of Mines Annual Report for the year 1929*, 30. From the 1930s onwards, many of the problems concerning labour supplies and capital for the Southern Rhodesia mining industry can be seen as resulting from its position in the regional economic system between the two immensely rich poles of the Copperbelt and the Rand.

⁴⁹Competition from this source was alleviated after the collapse of the tobacco boom in 1928.

⁵⁰S 472.

The number of mines also rose rapidly, from 499 in 1931 to 1,634 in 1934. Virtually all the new producers were smallworkers and of their number, some ninety per cent produced less than five hundred ounces of gold per annum.⁵¹ Nevertheless, the percentage contribution of small mines to the total gold output climbed to between twenty five and thirty per cent and the predominant position earlier held by the large gold mines deteriorated considerably. By 1936, their share of the total gold mined had fallen to only thirty seven per cent.⁵²

This structural shift in favour of smallworkers was both a cause and a consequence of changed Government policy towards the mining industry after 1931. New taxes mainly affected large producers and various forms of Government assistance were designed primarily to aid small mines. Interaction of these several aspects of Government policy and other factors prevented the re-establishment of the gold mining industry on a secure basis in the years preceeding World War Two. The spectacular expansion of prewar years was superseded after 1941 by an equally swift collapse which underlined the industry's basic profitability constraints.

Initially, though, the rise in the price of gold, on average some 32s. per ounce higher than the old fixed price, was 'of the utmost value and has enabled certain mines to continue working profitably, whereas at the price of standard gold they were barely making expenses'.⁵³ Not only did established properties take on a new lease of life, but their ranks were also yearly augmented by hundreds of small producers. As early as 1932, the value of the 'premium' alone was £916,522 out of a total gold output worth £3,366,222⁵⁴ and undoubtedly was of vital importance in regenerating the gold mining industry.

But signs of recovery had been apparent even before the Colony left the gold standard. An official publication noted that following the onset of the Depression,

'already in 1930 men were turning back from base minerals to gold, as may be seen by the increase in gold claims registered . . . The number of the smallest class of mines rose, too, from 249 in 1929 to 286 in 1930. This recrudescence of gold mining activity . . . was not much reflected in the output of the small mines, on account of the natural "lag" between increasing prospecting and increasing production'.⁵⁵

⁵¹*Rhodesian Manual* (London and Johannesburg, 1935-6), 68-9.

⁵²S 472.

⁵³*Report of the Secretary, Department of Mines and Public Works, on Mines for the year 1931*, 3.

⁵⁴*Rhodesia Chamber of Mines Annual Report for the year 1932*, 17.

⁵⁵Wilson, 20-1.

Allied to renewed entrepreneurial interest in gold mining was the supply of labour released by depressed agricultural and especially base mineral producers. The number of Africans employed on gold mines rose from roughly twenty two thousand in 1930 to almost sixty thousand by June 1934. This represented an increase of about 173 per cent, while in the same period the numbers engaged in asbestos mining decreased by 68.9 per cent, in chrome by 83.9 per cent and in coal by 56.9 per cent.⁵⁶

Revelling in a situation of abundant black labour, the gold mines, particularly the increasing numbers of smallworkers, reduced African wages constantly after 1930. From an average monthly figure of 28s 2d. in 1930, wages fell yearly until by 1935 the average monthly pay for an African mineworker was 20s. 1d. Even this figure is misleading high, as the larger mines

'pay wages which are consistently higher by nearly 50 per cent than those paid by the smaller mines. Employment on the small mines has increased more rapidly than on the large and the decline from 21,071 in 1935 to 18,108 in 1937 in the numbers of native labourers in the latter group was accompanied by an increase from 46,552 to 52,809 respectively in native workers engaged on small mines. As a result of the greater relative importance of the small miner, the average wage paid in the industry was not much above that paid by the small mines'.

In 1935, for example, the average monthly wage paid on a small gold mine was only 17s. 10d.⁵⁷

So marked and widespread were African wage reductions that they drew the attention of officials outside the mining industry. One Native Commissioner observed that 'even on Gold Mines where a premium is being paid . . . the pay of Natives is kept as low as possible. I have seen cases where Natives were employed in trolleying Quartz — the pay was 8/- for a 30 day ticket, and this on a Mine which is producing profitably'.⁵⁸ Elsewhere it was reported that there 'has been considerable gambling in the mining industry at the expense of the native labourers. Plant and machinery is apparently easily obtained on credit, so that it is possible for a man with no capital to start mining, and if he does not succeed, the natives alone are the losers'.⁵⁹ Not surprisingly, overseas commentators, too, were able to congratulate the Southern Rhodesian gold mines on enjoying 'the cheapest black labour probably in the British Empire'.⁶⁰

⁵⁶*Economic and Statistical Bulletin of Southern Rhodesia*, II, 21.ix.1934, 2.

⁵⁷*Ibid.*, VI, 21.vii.1938, 2.

⁵⁸S 235/526, NC, Victoria, report for October 1933.

⁵⁹S 235/512, NC, Gwelo, report for year 1934.

⁶⁰*African World Annual*, 1934, 173.

Cost minimisation in the vital sphere of black labour was crucial for small mines despite the increased price of gold. There were several related reasons for this, apart from the fundamental constraints which operated during and after the reconstruction period.⁶¹ Most important, perhaps, was the fact that

'a large number of existing producers have been imported into the industry through depression in other trades, without any experience in prospecting or in any branch of mining; it is not surprising to find that this class of producer is often found endeavouring to work propositions quite uneconomic under any condition, and often employing the crudest methods of mining'.⁶²

Smallworkers' operations frequently suffered from 'breakdowns of machinery . . . due to neglect; unsuitable extraction methods; lack of sufficient ore reserves to keep the mills supplied; . . . and insufficiency of capital to stay the course till the production stage is reached, with its corollary of stopped credit'.⁶³

Smallworkings were characteristically labour-intensive operations, and this feature was greatly aggravated when coupled with the entrepreneur's inexperience and minimal capitalisation. Ignorance of efficient surface and underground organisation usually eliminated the possibility of cost minimisation there, and reinforced the need for cheap, black labour. This imperative was rendered particularly acute by the associated wastage and inefficient utilisation of labour.⁶⁴ For example, as late as 1938 it was calculated that on small mines efficiency rarely approached a figure of five:

'By this figure is meant the all important figure of tons of ore per month to mill per native employee . . . in practically every case the tonnage milled on small mines is over-estimated, and no exact methods of measurement exist. I do not believe that there is any small mine in this country . . . which has an overall efficiency exceeding five. The worst case . . . was nearly 300 natives employed for less than 500 tons milled'.⁶⁵

Although smallworkers were responsible for a significant proportion of of Southern Rhodesia's expanded gold output after 1931, this obviously rested on the flimsiest of foundations, especially as inefficiency was masked

⁶¹See Phimister, 'Reconstruction'.

⁶²*Report of the Secretary, Department of Mines and Public Works, on Mines for the year 1935*, 2. See also, *Report of Commission to enquire into the Preservation . . . of the Natural Resources of the Colony*, 1939, 51.

⁶³*Rhodesian Mining Journal*, October 1933, 403.

⁶⁴S 235/517, Assistant NC, Que Que, report for year 1939.

⁶⁵*Smallworker*, October 1938, 23. Calculated on a rather different basis, the crushing stamp efficiency on the Rand in 1933 was, on average, roughly fifteen tons per stamp per twenty four hours, whereas for many small Southern Rhodesian mines it was merely from 0.4 to 1.9 tons per stamp; see *Rhodesian Mining Journal*, October 1933, 403; *ibid.*, April 1933, 155.

and output achieved only through the exploitation of ultra-cheap African labour. The gold mining industry 'has never been in a healthier condition than to-day and its prospects of further advancement have never been brighter', claimed the Secretary for Mines in 1935, but the same report noted warnings that the industry 'whilst appearing to flourish, is, in fact, in a precarious position, and has no foundations or base to withstand any adverse conditions . . . and . . . a drop in the price of gold or an increase in working costs would result in at least a partial collapse of the industry.'⁶⁶

To a considerable extent, however, many smallworkers were propped up by Government assistance. Such aid had existed in the previous decade but its volume grew considerably in the 1930s.⁶⁷ Their rapidly increasing numbers and economic importance had assisted the capture by smallworkers of a dominant position in the governmental system of the mining sector after the general election of 1933. Political power was thereafter used in an attempt to consolidate and perpetuate the particular interests of small producers within the mining industry.

A wide range of Government services to the mining industry were instituted or augmented, most notably the establishment of a state-financed Roasting Plant at Que Que for the treatment of refractory sulphide ores and the provision of regular, cheap power through the Electricity Supply Commission.⁶⁸ Many small mines were thus able for the first time to undertake the extraction of sulphide gold ore, while simultaneously electric power contributed to lower working costs.⁶⁹

Mining operations by smallworkers were further facilitated through access to a Government Loan Fund and the fact that the great majority of small mines were exempt from fresh mining taxation.⁷⁰ As regards the latter, the Gold Premium Tax of May 1932 introduced a levy of fifteen per cent on monthly outputs exceeding three hundred ounces from mines realising more than 2½ dwts. per ton. Apart from minor adjustments to the level of exemption, this tax remained in force until 1937 when it was temporarily

⁶⁶*Report of the Secretary, Department of Mines and Public Works, on Mines for the year 1935*, 1.

⁶⁷Increased Government aid was also related to the Colony's purchase of the mineral rights from the BSAC in 1933; prior to that date, the government was unwilling to assist an industry whose royalties went to a private company; see S 480/6, 'Mining Policy', 23.v.1933.

⁶⁸For details, see *Report of the Secretary, Department of Mines and Public Works, on Mines, for the year 1936*, 3; *Rhodesian Mines and Industries*, October 1940, 5-9; *ibid.*, June 1949, 29-31.

⁶⁹S 257. A. R. Metelerkamp, to Secretary, Department of Mines and Public Works, 15.ii.1934. But a number of small mines were so marginal they could not afford the initial capital cost of electricity; see *Report of the Secretary, Department of Mines and Public Works, on Mines, for the year 1938*, 7.

⁷⁰All mines paid income tax.

abandoned, only to reappear in a somewhat different form in September 1939.⁷¹ While the full consequences of the Government's taxation policy were to emerge only during and after World War Two, it had two immediate results.

The exemption limit of three hundred ounces allowed practically every small mine to escape the tax and consequently it was borne by a comparatively small number of producers, mostly the large mines.⁷² By far the greatest benefit conferred by the increased price of gold was the lowering of the grade of ore which could be profitably mined and, as earlier noted, the grade declined considerably after 1931. In theory, such a development should have been of immense value to large mines who could thereby lengthen their profitable lives by initially mining expanded tonnages of low grade ore, while conserving, as in the early 1920s, reserves of high grade ore. But full implementation of this policy was frustrated both by the incidence and the way in which the Gold Premium Tax worked. Because it was a tax on the product itself, it meant that 'this policy of working low grade ore may not be practicable because such a tax by reducing the value of the low grade ore automatically excludes the whole or portion thereof from the range of ore which can be profitably extracted at all'.⁷³ Nor was the Government itself unaware of the effect of the tax; when it was reintroduced in 1939, the Minister of Finance specifically rejected the alternative of an excess profits tax because 'producers who were able to reduce their grade would feel constrained to do so, and the amount of tax collected would be proportionately reduced'.⁷⁴ It was therefore only the smaller mines who were able to work the lowest grades of gold ore; in 1935 when the average grade extracted by the industry as a whole was 3.9 dwts, that of the majority of large mines was 6.1 dwts.⁷⁵

Even as taxation operated to shorten the lives of existing large mines, so its second result, that of deterring large-scale capital from entering the gold mining industry, reduced the possibilities of developing new properties of equivalent importance. The problems associated with declining output from the mid-1920s onwards had originally inhibited the flow of capital as companies were unwilling to take up fresh ventures. Calls had been made for a 'purely speculative — or more speculative — mining company than we have in the country at present', because most of the 'companies today require more development done before they take up an option than our

⁷¹For discussion and explanation of this complex taxation, see, *Report of the Committee of Enquiry into the Taxation of Low Grade Mines, 1937*; *Report of the Commission of Enquiry into the Mining Industry of Southern Rhodesia, 1945*.

⁷²*Rhodesia Chamber of Mines Annual Report for the year 1934*, 18; *Rhodesian Mining Journal*, June 1932, 314.

⁷³*Commission of Enquiry into the Mining Industry*, 6.

⁷⁴H.Mss. SM 4/1/1, Memorandum, Gold Premium Taxation Act, 23.xi.1939.

⁷⁵*Rhodesia Chamber of Mines Annual Report for the year 1935*, 17.

prospectors are able to provide'. It was recognised, however, that while 'we had such companies in the early days, . . . it is quite possible that we have passed that phase in the country's development'.⁷⁶

One way of overcoming the general inability of prospectors to provide sufficient development to entice company interest was to employ the modern prospecting methods (i.e. exclusive prospecting grants and aerial surveys under the control of the searching company) which had been so successful on the the Northern Rhodesian Copperbelt. But this method of attracting capital was stopped by smallworkers:

'[They] turned down a golden opportunity of introducing much needed funds for the thorough exploration of a large tract of mineralised terrain. It was not as if they were protecting their interests in respect of virgin country in a mining sense; the area involved has been prospected for the past forty years, and the fact that no striking results accrued from this cursory investigation only points all the more decidedly to the need for a properly-conducted mineral survey by trained experts, equipped with the latest instruments and able to bring to the under-taking a wide knowledge of mineral occurrences and rock formations on other fields. This unconditional slighting of the bona fide offer made by the Victoria Prospecting Syndicate, which embraces most of the influential mining houses of South Africa, can do the Colony no good, and is . . . calculated to make capital shy in the future'.⁷⁷

Denied the advantages of modern prospecting methods and later hampered by Government taxation, the flow of outside capital declined to a trickle. The gold mining industry increasingly came to rely on small amounts of capital locally raised by smallworkers and syndicates for development. In 1932, the sum of the capital for new flotations was £107,000 and in 1933 a still-inadequate £360,000.⁷⁸ Large companies already operating in Southern Rhodesia also devoted sums to the search for new mines, but their approach was cautious and expenditure restricted owing to the constraints previously outlined. Leading companies later disclosed that between 1935 and 1938, 'over four hundred properties owned or worked by smallworkers or others had been offered to them and examined with a view to the taking of development options or purchase. The companies between them took working options on twenty-one properties resulting in the purchase of five'.⁷⁹

'It is still apparent', wrote the Secretary for Mines in 1935, 'that there is insufficient capital in the Colony for the successful development of the mining industry'.⁸⁰ Hopes were pinned on signs that a number of South

⁷⁶S 480/1, Downie to Inskipp, 7.xii.1928.

⁷⁷*Rhodesian Mining Journal*, December 1931, 696.

⁷⁸*Ibid*, January 1935, 10.

⁷⁹*Report of the Economic Development Committee*, 1939, 4.

⁸⁰*Report of the Secretary, Department of Mines and Public Works, on Mines, for the year 1935*, 3.

African financial houses were turning their attention to Southern Rhodesia, but these evaporated during 1936. 'Disappointment has followed', explained the Colony's Minister of Finance, the 'Government's taxation policy is likely to act as a deterrent to development'.⁸¹ Another reason for the failure of the gold mining industry to attract much-needed capital was the existence of the Loan Fund for small mines. Financial help from this source enabled small-workers to develop properties themselves and the resultant degree of independence allowed them to demand higher prices before selling to companies. The consequence of the Fund for the wider development of the industry were later reported as

'(1) . . . promising properties remained in inexperienced hands; (2) . . . owners are encouraged to overvalue their properties when seeking the aid of private capital; (3) . . . the Government and the owners are expending public funds on ventures too risky to attract capital available for legitimate ventures'.⁸²

Domestic factors aside, perhaps the main reason for the Southern Rhodesian gold mining industry's lack of capital was the perennial problem of competition with Rand investment opportunities. The *Rhodesian Mining Journal* was convinced that the 'present non-availability of Rand capital for Rhodesian gold mining projects is that the future new mines . . . on the extension of the industrialised sector of the Rand syncline offer a much better prospective return than a low-grade Rhodesian proposition . . . the prospect of a deviation of capital to Rhodesian gold mining enterprises . . . seems very slight indeed'.⁸³

With expanded production based on its technologically least-advanced and least-capitalised sector, the gold mining industry was ill-fitted for the outbreak of World War Two and its ensuing problems. As in the last war, cost inflation was major problem and one which smallworkers were least able to combat. An investigation conducted by the Government revealed that after only three months of the war beginning, 'the rise in cost of labour, rations, mining supplies and power over all mines [was] . . . 1.28 per cent . . . The increase did not appreciably affect the large mines which had with commendable foresight laid in large reserves of supplies but it has already embarrassed some of the small workers who have not sufficient working capital to plan far ahead'.⁸⁴ By 1942 the average price level of mining supplies had advanced by twenty three per cent in the case of large mines and by thirty one per cent for small mines:

⁸¹H.Mss. SM 4/1/1, Memorandum, undated.

⁸²*Economic Development Committee*, 5.

⁸³*Rhodesian Mining Journal*, November 1936, 1196.

⁸⁴*Report of the Secretary, Department of Mines and Public Works, on Mines for the year 1939*, 3.

'It is not surprising, therefore, that the shortfall in gold production should be mainly due to a reduction in the number of small workers . . . [they] declined from 1,050 in 1941 to 877 in 1942 . . . and the gold yield of this class decreased from 183,924 fine ounces in 1941 to 148,539 in 1942'.⁸⁵

Throughout the war years the output of gold continued to fall rapidly and in 1945 production amounted to 568,242 ounces, a decrease of 258,243 ounces since 1940.⁸⁶ The total number of gold mines fell from 1,477 in 1940 to 732 in 1945, by far the greatest reduction in numbers occurring amongst smallworkers.⁸⁷ Large mines gradually began to recover their former pre-dominant position within the industry and in 1945 produced over forty six per cent of the total gold output. Ten years later their contribution had risen to over sixty per cent.⁸⁸ Unlike the period after World War One, however, large producers were unable to maintain their outputs at pre-war figures; these declined markedly from approximately 352 thousand ounces in 1940 to 263 thousand in 1945 and to 231 thousand in 1950.⁸⁹ Their expanded percentage contribution to total production was merely a reflection of the dramatic collapse of smallworker production.

Although big mines were more capable of absorbing rising costs during the war than were smaller propositions, their general viability continued to be eroded to a certain extent by Government taxation policy. Re-imposition of the Gold Premium Tax at the beginning of the war was considered to be a major burden and in fact was strongly criticised in 1945 by a Commission appointed to enquire into the deteriorating state of the gold mining industry.⁹⁰ Nor did abolition of the tax at the end of the war alter the prospects of the industry; in the short-term capital remained scarce and companies were unwilling to undertake expensive operations. The Secretary for Mines pointed to the case of The Gold Fields Rhodesian Development Company who

'exercised its option over the B. & S., Fossicker and Jupiter Mines during the year . . . [but] it seems unlikely . . . that the mines will be equipped, or that money will be raised from the investing public, until the taxation policy of the new Government is known. There is

⁸⁵*Chamber of Mines of Rhodesia Annual Report for the year 1942*, 10; see also, *Report of the Secretary, Department of Mines and Public Works, on Mines for the year 1942*, 14; 'conditions in 1942 have generally deteriorated and have affected to a considerable extent the small worker . . . [but] have not seriously handicapped the operations of the larger mines'.

⁸⁶*Report of the Secretary, Department of Mines, for the year ended 31st December, 1945*, 64.

⁸⁷*Annual Report of the Chief Government Mining Engineer and Chief Inspector of Mines Southern Rhodesia, for the year ending 31st December, 1953*, 25.

⁸⁸*Chamber of Mines Journal*, April 1962, 25.

⁸⁹*Ibid.*

⁹⁰*Commission of Enquiry into the Mining Industry*, 5. For Government defence of its policy, see *Southern Rhodesia Legislative Assembly Debates*, 24, Sixth Session, Fifth Parliament, 1.v.1944, col. 512 onwards.

the same hesitation for similar reasons on the part of other "entrepreneurs" who are interested in Rhodesian mines, and no venture-some capital is likely to be introduced into the Colony for mining purposes until the position is more stabilised'.⁹¹

More significant were the long-term consequences of previous Government policy and the associated scarcity of capital which had hampered gold mining for over a decade.

Because large producers had been frustrated in their desire to work the lowest possible grades of gold ore during the optimum economic conditions of the 1930s and because little capital had been forthcoming for the development of new big mines, the ability of this sector to maximise output after 1945 was limited. Moreover, problems of falling output were greatly compounded by cost inflation which remained unabated in the period 1946 to 1953. Not only did the cost of mining stores rise steadily, but so did African wages, both of which formed a major portion of total working costs. Reference to Table III below indicates the magnitude of cost inflation.

TABLE III: WORKING COST INDEX, 1939-50⁹²

YEAR	1939	1947	1948	1949	1950
Cost of Mining Stores	100	137	143.6	152.6	169
African Wages	100	?	144.4	160.6	177.4

In particular, the rise in African wages threatened the very foundation of the gold mining industry's profitability. It was earlier explained that cost minimisation in this sphere was crucial for smallworkers and the problems encountered by large mines in other fields underscored the continuing central importance of cheap black labour for their profitable existence. A report in 1945 warned that the

'future of mining in Southern Rhodesia is mainly dependent on the continuance of an adequate supply of Native labour, and on its efficient use. Without the Native Labourer neither the mining industry of Southern Rhodesia nor that of the rest of South Africa could have been developed in the past, or can be maintained or expanded in the future'.⁹³

⁹¹*Report of the Secretary, Department of Mines, for the year ended 31st December, 1945*, 69.

⁹²*Southern Rhodesia, Treasury, 'Economic Survey of Southern Rhodesia, April 1946 to March 1951'*, 27.

⁹³*Commission of Enquiry into the Mining Industry*, 12.

Signs of labour shortage had been apparent as far back as 1936 and in response wages had crept slightly upwards.⁹⁴ Once again, Southern Rhodesia's situation within the regional economy was an important factor; 'the labour requirements of the mines on the Rand are almost insatiable, and there appears a danger that . . . the higher wages paid by the Rand mines will be an irresistible magnet to native labour'. The solution, suggested the Secretary for Mines, 'lies in making conditions of labour as attractive as possible and in giving a fair return for services rendered'.⁹⁵ But substantial wage increases were beyond the capacity of much of the gold mining industry.

After 1939, the gold mines faced competition for labour from other sources as well; the war acted as a major stimulus both to the labour needs of the base mineral properties and to those of rapidly expanding secondary industry. Neither form of enterprise was circumscribed by a fixed price for its product and consequently could easily out-bid the gold mines in the labour market. 'The [gold] miner can only pay a certain price for his labour', complained one industrial journal, 'and he cannot afford to meet the competition of secondary industry'.⁹⁶ Despite an increase in average monthly cash wages on gold mines of roughly thirty one per cent in the period 1939-1947, the level of such wages was progressively falling behind those paid by base mineral mines.

**TABLE IV: AVERAGE MONTHLY AFRICAN CASH WAGES
BY MINERAL WON, 1944-1953⁹⁷**

AVERAGE MONTHLY WAGES PER AFRICAN EMPLOYED														
Year	Gold		Asbestos		Chrome		Coal		Mica		Tin		All Minerals	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1944	26	9	26	4	28	3	48	2	19	8	23	9	28	0
1945	27	5	26	6	30	3	46	10	20	9	24	10	28	9
1946	28	9	31	0	33	9	48	6	22	6	25	8	30	7
1947	30	4	34	7	36	1	46	2	25	3	27	6	32	4
1948	33	7	36	2	42	9	65	1	27	4	28	6	37	2
1949	37	4	42	4	46	8	67	9	30	2	31	2	42	8
1950	41	1	46	5	49	3	69	7	35	7	35	6	46	2
1951	44	4	40	7	57	2	78	6	37	0	40	10	49	3
1952	49	10	55	4	65	3	77	1	44	9	56	0	57	3
1953	53	2	66	0	67	11	82	8	50	11	62	10	63	5

⁹⁴*Economic and Statistical Bulletin of Southern Rhodesia*, IV (New Series), 21.vii.1938, 2.

⁹⁵*Report of the Secretary, Department of Mines and Public Works, on Mines, for the year 1937*, 8.

⁹⁶*Rhodesian Mines and Industries*, April 1948, 13.

⁹⁷*Annual Report of the Chief Government Mining Engineer and Chief Inspector of Mines . . . for the year ending 31st December, 1954*, 9.

This trend became even more marked after 1947; in 1953 only mica mines paid lower monthly wages than gold mines.

Renewed competition also came from the Northern Rhodesian copper mines where average wages in 1949 were over 21s. per month higher than on gold mines in Southern Rhodesia and the latter's labour supply was accordingly reduced.⁹⁸ Between 1942 and 1952, the African labour supply from Northern Rhodesia and Nyasaland decreased by almost twenty thousand, 'due, no doubt, to the fact that there is more employment now offering in their own countries, and at better rates than were previously paid'. The gold mining industry was forced to concede that the

'deciding factor that affects any expansion of the African labour force in Southern Rhodesia, and one quite beyond the control of those who are endeavouring to obtain increased labour, is the high wage scale on the large Northern Rhodesian mines'.

In 1952, wages on the Copperbelt were almost exactly double those pertaining on gold mines in the south.⁹⁹

Apart from causing wages to rise, the shortage of labour further increased working costs because many mines were unable to keep their milling plants running at full capacity.¹⁰⁰ One solution to the problem lay in mechanisation and on some mines underground locomotives and mechanical loaders were introduced.¹⁰¹ Only large mines, however, could afford the requisite capital outlay:

'It is not possible to overcome the [labour] problem so far as the majority of mines are concerned by reducing the number of Native employees and embarking on increased and improved mechanisation, because such mechanisation involves a large capital outlay, and such an outlay is not available or warranted in the majority of instances. The smaller mines must have Native labour, and if they are to survive, the overall cost of that labour must not be increased above present costs'.¹⁰²

⁹⁸*Rhodesian Mining Journal*, April 1950, 95.

⁹⁹*Ibid.*, January 1953, 3. This factor had a direct bearing on the composition of Federal Government responsibilities when the Central African Federation was established at the end of 1953; according to Colin Leys, *European Politics in Southern Rhodesia* (Oxford, 1959), 104; 'Mining was not left as a Territorial Government responsibility by accident. Although the principal argument in favour of federation was the possibility of co-ordinating economic development under a single government, mining, the lynch-pin of the economy, was not transferred to the Federal Government because the Southern Rhodesian mines feared the phenomenally high wages and the dominating economic strength of the copperbelt. Probably they have been able to perpetuate in this way a level of wages and working conditions more favourable to them than if they had had to deal, in company with the copperbelt, with a Federal minister'.

¹⁰⁰*Chamber of Mines of Rhodesia Annual Report for the year 1948*, 2.

¹⁰¹*Rhodesian Mining Review*, July 1952, 17. The productivity of African labour on gold mines also increased; see *Rhodesian Mining Journal*, January 1949, 27-9. For mechanisation on Wankie Colliery, see *Rhodesian Mining Journal*, February 1949, 55.

¹⁰²*Report of the National Native Labour Board* . . . , 6.xi.1948, 30.

Although unable to undertake extensive mechanisation, small mines attempted to minimise increased African labour costs by paying closer attention to efficient and standardised mine 'lay-outs', together with a limited degree of mechanisation.¹⁰³ Whereas mining magazines had formerly carried articles reiterating the customary day-to-day economies necessary on small workings,¹⁰⁴ these were now superseded by advice concerning the advantages of limited mechanisation and the small capital cost involved.¹⁰⁵

Some assistance came from the Government in the form of a temporary subsidy on the price of gold and the devaluation of Sterling in 1949, but constantly increasing costs soon narrowed the profit margin in relation to the fixed dollar price of gold. 'It is extremely unlikely', reported the President of the Chamber of Mines, 'that much more capital will be put into gold mining unless there is a radical change in the general cost structure and/or in the price of the metal'.¹⁰⁶ But the only changes in the cost structure were upwards; the cost index for mine stores rose from 169.0 in 1950 to 205.2 in 1953 and by the latter year, average monthly African wages had risen by over twenty five shillings since 1944. Further price increases were threatened in railway rates and in the cost of electrical power.¹⁰⁷

In 1953 the amount of gold produced, although having recovered slightly from 1948, was smaller than in 1906 and it was acknowledged that the 'day of the "Small-worker", to whom this country is so deeply indebted, is rapidly drawing to a close'. For the gold mining industry as a whole, there seemed only the dismal prospect of progressively difficult conditions without any immediate likelihood 'of an increase in the price of gold to assist mines to hang on in hope of better times'.¹⁰⁸

¹⁰³*Rhodesian Mining Review*, December 1949, 11.

¹⁰⁴'Natives are notoriously extravagant with grease and oils, and their usual practice is to dig into a tin of grease, take out about a pound and put it on a flat tin. Then they grease a scotch cart or cocopan using about a tenth of the grease and forget about the rest. If each native that does greasing regularly has his own tin and the grease is issued from the store, a lot of waste can be prevented; *Smallworker*, August 1946, 9.

¹⁰⁵*Rhodesian Mining Review*, January 1952, 20-1.

¹⁰⁶*Chamber of Mines Annual Report for the year 1953*, 3.

¹⁰⁷*Annual Report of the Chief Government Mining Engineer for the year ending 31st December, 1953*, 13, 5, 17.

¹⁰⁸*Ibid*, 13, 19.



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